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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MENON, KRISHNAN S	

ART UNIT	PAPER NUMBER
1723	

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/846,777	ZEPF, ROBERT F.	
	Examiner	Art Unit	
	Krishnan S Menon	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19 and 69-72* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19 and 69-72* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-19 and 69-72 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-8, 14,16 -19 and 69-72 rejected under 35 U.S.C. 102(b) as being anticipated by, or in the alternative, under 35 USC 103(a) as being unpatentable over Kinn et al (US 4,973,382).

Kinn teaches a polymer mesh (abstract) comprising a first and second surface having pores >30 microns (col 2 lines 27-31) with support structure having reticulated network of flow channels (col 3 lines 45-53) as in claim 1 (reticulate: having fibers or veins; reticulated: constructed to form a network - Webster's Collegiate Dictionary, 10th Ed). Pore dia of the first (or the second) surface about 60 microns, or from 50-200, or 60-150, or 70 – 100 microns as in claims 2-5 (or claims 69-72). Membrane thickness > 50 microns as in claim 8 (table I), polymer is polyester or acrylic as in claim 14 and has hydrophilic components as in claims 16 and 17 (col 3 lines 30-35, col 5 lines 40-47); ratio of polymer to hydrophilic is in the range of claims 18 and 19 – see example 1 and table II. The subsequently added limitations of "**cast**" and "**coagulated**" are process steps of making the membrane. "[E]ven though product-by-process claims are limited

by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re *Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Please also note that the membrane of Kinn has a binder in it (see col 5 lines 9-47), especially the acrylic co-polymers and PVA, which would have a coagulated structure (coagulated = thickened into a coherent mass: Webster's Collegiate Dictionary, 10th Ed.)

Claims 69-72 now depend form claim 2, and has pore diameters of the second surface falling is either > 60 or within a range of 50-200 microns- Kinn has pore size between 20 and 80 microns: col 2 lines 27-31.

Claims 6 and 7: The bubble point and the flux of the membrane are inherent. Evidence of inherency: Wang (747) teaches a polymer membrane mesh **made by casting** (applicant uses 'mesh' to mean a coagulated structure with reticular network of flow channels; ref: specification page 2 last para to page 3 first para) comprising a surface with minimum pores and opposite surface with maximum pores, with a porous support in between the two surfaces (col 6: 10-30) and with first surface having pores of 0.1-3 microns and second surface having pores of 50 to 1500 microns (col 6 lines 11-30). Wang (747) teaches bubble point as in claim 6, water permeabilities as in claim 7: the membrane has a bubble point about 0.5 psi or more (col 6: 25-30) and water permeabilities in the range of 30,000 ml/min for a 90 mm dia disc at 10 psi pressure (col

7: 30-38). Since the bubble point is less than 1 psi and water permeabilities greater than 30,000 ml/min of membranes with first surface pore diameter 3 microns or less, membranes with first surface pore size >30 microns would inherently exhibit even lower bubble points and higher water permeabilities than the membrane with 3 micron pore diameter. Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/103 rejection. "There is nothing inconsistent in concurrent rejections for obviousness under 35 U.S.C. 103 and for anticipation under 35 U.S.C. 102." In re Best, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA 1977). This same rationale should also apply to product, apparatus, and process claims claimed in terms of function, property or characteristic. Therefore, a 35 U.S.C. 102/103 rejection is appropriate for these types of claims as well as for composition claims.

2. Claims 1-11, 14-17 and 69-72 rejected under 35 U.S.C. 102(b) as being anticipated by, or in the alternative, under 35 USC 103(a) as being unpatentable over WO 00/00702 (corresponding US Patent US 6,500,337 B1 to Ehrnsperger et al, which is used in the rejection).

Claim 1: Ehrnsperger teaches a polymer membrane having surface pores 30 microns or more and a support structure of reticulated (Reticulated: constructed to form a network of fibers or veins) network of pores (abstract, col 2 lines 47-54). The

reticulated network of pores is inherent, even if the ref does not specifically state so: The claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d, 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). Cast and coagulated are process steps as above – see in re Thorpe.

Claims 2-5 first surface pores are >60 microns or between 50-200 microns, etc: col 2 lines 47-54).

Claims 8-11: membrane thickness is less than 100 microns – see col 2 lines 55-56, which would fall in this range.

Claims 14-17: polyurethane, polyamide or polypro – see examples. Hydrophilic component as in claims 16 and 17: see col 7 lines 5-14: polyvinyl alcohol is a hydrolyzed product of polyvinyl acetate, and would be inherently present in polyvinyl acetate.

Claim 69-72: pore dia of second surface is also defined as in claims 2-5: less than 100 microns, which would fall within the ranges recited.

Claims 6,7: Even though the 'Ehrnsperger reference does not teach the bubble point and the flow rate >30,000 ml/min, these would be inherent, since the membrane in the ref has same thickness and pore sizes. Evidence for inherency: Reference Wang (US 6,146,747) teaches a membrane having first side pore 0.1-3 microns and the other side having 50 microns or more, which show same bubble point and water flow rate. Since the membrane from the reference has even larger pore sizes on the first side, the

'Ehrnsperger ref would inherently show lower bubble points and higher flow rates. In re Best, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA 1977).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinn et al (US 4,973,382) in view of Wang et. al.(US 6,146,747).

Kinn teaches all the limitations of claim 1, but does not teach polyolefins as in claim 15. However, polyolefins would be considered as an obvious equivalent of the materials listed in claim 14, unless applicant can prove otherwise. Wang (747) teaches polyolefins in col 14 lines 24-36. It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Wang (747) in the teaching of Kinn to improve strength as taught by Wang (747)

2. Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinn et al (US 4,973,382) in view of Wang (US 5,869,174).

Kinn teaches all the limitations of claim 1. Instant claims add further limitations, which are not taught by Kinn. Wang (174) teaches an asymmetric membrane (abstract, col 4 lines 46-64) and how to obtain larger pore diameters on the first surface by controlling the process parameters such as the time of exposure of the cast film to air

(longer exposure produces larger pores), temperature of the quench bath (warmer quench bath produces larger pores), etc., in col 5 line 11 – col 6 line 58. Thickness of 75-200 microns as in claims 9-11 (See col 6 lines 39-50). Membranes are made from polysulfones as in claims 12 and 13 (abstract). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Wang (174) in the teaching of Kinn (382) to make filter membranes for use as pre-filters etc in food, pharmaceutical or biotechnology applications, for chemical and high temperature stability, etc., as taught by Wang (174) (col 2 line 47 – col 3 line 40), for removal of contaminants, by surface and depth filtration as taught by Kinn (col 5 lines 48-62).

3. Claims 12,13 are rejected under 35 USC 103(a) as being unpatentable over WO 00/00702, or the corresponding US Patent US 6,500,337 B1 in view of Wang (174).

Ehrnsperger teaches a polymer membrane having surface pores 30 microns or more and a support structure of reticulated (Reticulated: constructed to form a network of fibers or veins) network of pores (abstract, col 2 lines 47-54), but does not teach polysulfones. Wang teaches polysulfones – see abstract. It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Wang in the teaching of Ehrnsperger as an alternative but equivalent material, but which can be produced more efficiently with a simplified process (Wang col 2 lines 48-53).

4. Claims 18 and 19 are rejected under 35 USC 103(a) as being unpatentable over WO 00/00702, or the corresponding US Patent US 6,500,337 B1.

'Ehrnsperger teaches the hydrophilic component but not the composition. However, it would be obvious to one of ordinary skill in the art at the time of invention that this composition can be optimized to for the right degree of wettability as taught by 'Ehrnsperger – see col 7 lines 5-14. Discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Response to Arguments

Applicant's arguments filed 10/1/04 have been fully considered but they are not persuasive.

Applicants' arguments are directed at the newly added limitation of "coagulated", which is deemed part of the process. Also the reference does show coagulated structure at least with respect to the binder present in the membrane. Applicants' argument that the 'phase inversion process' and wet-laid process are fundamentally different is without any supporting evidence that the difference in the process would make a significant and unobvious structural difference to the resulting product.

Conclusion

This action is in response to an RCE, and is made non-final because of the newly added grounds for rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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